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10/552,618	08/25/2006	Berndt Cramer	10191/4522	6299

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KENYON & KENYON LLP
ONE BROADWAY
NEW YORK, NY 10004

EXAMINER	
DINH, BACH T	

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10/27/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/552,618	CRAMER ET AL.	
	Examiner	Art Unit	
	BACH T. DINH	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 August 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13,15-23 and 25-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13, 15-23 and 25-41* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Summary

1. This is the response to the communication filed on 08/06/2010.

2. Claims 11-13, 15-23 and 25-41 remain pending in the application.

3. The application is not in condition for allowance.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 30, 33 and 36 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The limitation "the device is configured to compensate for manufacturing tolerances of a gas-sensor through at least one of software adaptation and without altering hardware" is not explicitly disclosed by the originally filed specification.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 30 and 33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant

regards as the invention. The limitation "the device is configured to compensate for manufacturing tolerances of a gas-sensor through at least one of software adaptation and without altering hardware" is not explicitly disclosed by the originally filed specification; therefore, it is unclear as to what structure of the claimed device that compensate for manufacturing tolerances. Furthermore, it is unclear as to how the limitation of current claim further structurally limits the claimed device because "software adaptation" means the manufacturing tolerances, which were never defined by the originally filed specification, are compensated by software and not by any structure of the device. This is evidenced by the fact that the claim and the originally filed specification explicitly states "without altering hardware". Therefore, claim 30 is indefinite for the lack of support from the originally filed specification and fails to further structurally limit the claimed device.

8. Claims 31 and 34-35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The limitation "a count of the number of ON phases or OFF phases … a direct measure for the pump current" simply states the relationship between the measured pump current and the number of ON or OFF phases without reciting any structures of the claimed device. Therefore, claims 31 and 34-35 are indefinite for failing to recite any structure of the claimed device. For examination, the device as recited in claims 31 and 34 has the same structure as recited in claims 11 and 21.

9. Claim 36 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as

the invention. Claim 36 recites the limitations of claims 30 and 31; therefore, claim 36 is indefinite for the same reasons stated above regarding the indefiniteness of claims 30 and 31.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 11-13, 15, 20-23, 25 and 29-37 are rejected under 35 U.S.C. 102(b) as being anticipated by Metrich (US 5,312,538).

Addressing claims 11 and 20-21, Metrich discloses a gas sensor device (figure 1), comprising:

A sensor chamber 3 that receives via a diffusion barrier a gas to be analyzed (the aperture made in the solid electrolyte layer 5 that connects the outside to the sensor chamber 3 is equivalent to the diffusion barrier for it restricts the movement of gas into the sensor chamber 3);

At least one pump cell (the electrodes 9, 10 and the portion of the solid electrolyte layer 5 between them constitute the pump cell) situated between the sensor chamber and the gas to be analyzed, wherein the at least one pump cell is exposed to the gas to be analyzed and includes an outer pump electrode 9 (figure 1);

A measuring electrode 7 situated in a reference-gas space 4;

A measuring cell (the electrodes 6, 7 and the portion of the solid electrolyte layer 5 between them constitute the measuring cell) situated between the sensor chamber 3 and the reference gas space 4, wherein the outer pump electrode 9 of the pump cell exposed to the gas to be analyzed receives a pump current which depends on a measuring voltage that is applied to the measuring electrode situated in the reference gas space (3:5-12 and 4:21-29); and

A constant current source for supplying the pump current (4:1-29, the circuit depicted in figure 1 is the constant current source), wherein the constant current source is at least one of: a) configured to be set to at least two values of the pump current (figure 2b, Imax and –Imax) and b) configured for alternating operation with ON phases and OFF phases, the duration of the ON phases and OFF phases being specified (figure 2C, the ON phases are Imax or –Imax and the OFF phases are at the base line; furthermore, figure 2C shows that the ON and OFF phases have predetermined duration; therefore, they are being specified).

Wherein for a fixed value of the pump current (6:13-16, current of predetermined strength) and a predefined duration (6:13-16, fixed duration) of the ON phases and the OFF phases (figures 2C), the device is configured to predefine the number of ON phases and OFF phases (the word "predefine" is interpreted to include the definition "to define in advance", Metrich discloses the device provides a periodic supply to the oxygen pump 2 with a variable cyclic ratio (6:55-63), which is controlled by the measurement signal delivered by the measurement cell (3:9-12); in other words, the number of the ON and OFF phases is defined by the variable cyclic ration, which is controlled by the

measurement signal that is obtained prior to the supply of current to the oxygen pump; therefore, the number of the ON and OFF phases are predefined).

Addressing claims 12 and 22, in figures 2B-2D, Imax is the positive polarity value and –Imax is the negative polarity value for the pump current.

Addressing claims 13 and 23, Metrich discloses the device is configured to determine an average of the pump current over a predefined measuring time (6:55-67, the average of the pump current over a predefined time t3; 7:8-33, the average pump current over a predefined time t4; time t3 and t4 are predetermined because the duration of the pump current is fixed as discussed above).

Addressing claims 15 and 25, in figure 2A, the measuring voltage Vs is recorded during the OFF phases shown in figure 2C.

Addressing claims 29 and 32, figure 2C shows the Imax peaks with different durations; therefore, the device of Metrich is configured to vary the duration of at least one of the ON and OFF phases; specifically, the duration designated as t3 is different than the subsequent duration of the Imax current and the average pump current is determined based on the time t3 (6:55-67). Therefore, when the average pump current is determined based on the time t3 or based other duration time periods that is varied to be different

than the time t3 (figure 2C), the device of Metrich is configured to determine the average pump current by varying the duration of at least one of the ON phases and OFF phases.

Addressing claims 30 and 33, in conjunction with the new matter and indefiniteness rejections above, current claims recite "the device is configured to compensate … through at least one of software adaptation and without altering hardware" (emphasis added). The phrase "at least one of" implies that the manufacturing tolerances are compensated by either the adaptation of software or without altering hardware. With respect to the limitation "software adaptation", this limitation means that the tolerances are compensated by the software and the not by the device; therefore, the software does not further structurally limit nor does the software structurally differentiate the claimed device from that disclosed by Metrich. In other words, the device of Metrich comprises all the required structures of the claimed device as discussed above; therefore, it is inherent the through software adaptation the device of Metrich is also capable of compensate for manufacturing tolerances because such compensation is done by the software and not by the device. With respect to the limitation "without altering hardware", the limitation implicitly states that the device as claimed in claims 11 and 21 are capable of compensating for manufacturing tolerances without having to alter any hardware or structure (emphasis added). In other words, the device of Metrich comprises all of the required structure of claims 11 and 21 would be able to compensate for manufacturing tolerances without being altered.

Addressing claims 31 and 34, in conjunction with the indefiniteness rejection stated above where current claims are rejected for lack of structure pertained to the claimed device; in other words, the limitation recited in current claims does not differentiate the claimed device from that disclosed by Metrich as discussed in the rejections of claims 11 and 21. Moreover, figure 2C discloses a number of ON and OFF phases during a predefined measuring time t represents a direct measure for the pump current Imax.

Addressing claim 35, figure 2C shows the Imax peaks with different durations; therefore, the device of Metrich is configured to vary the duration of at least one of the ON and OFF phases; specifically, the duration designated as t3 is different than the subsequent duration of the Imax current and the average pump current is determined based on the time t3 (6:55-67). Therefore, when the average pump current is determined based on the time t3 or based other duration time periods that is varied to be different than the time t3 (figure 2C), the device of Metrich is configured to determine the average pump current by varying the duration of at least one of the ON phases and OFF phases.
With respect to the limitation "a count of the number … pump current", the limitation does not add any further structure nor does it differentiate the claimed device from that of Metrich as discussed above. Moreover, figure 2C discloses a number of ON and OFF phases during a predefined measuring time t represents a direct measure for the pump current Imax.

Addressing claim 36, please see the rejections of claims 30 and 31 above.

Addressing claim 37, please see the rejections of claims 12-13 and 15 above.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

14. Claims 16, 19, 26 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Metrich (US 5,312,538) in view of Miyata et al. (US 5,895,564).

Addressing claims 16, 19, 26 and 28, Metrich discloses the pump current is controlled based on the measuring voltage of the measuring cell (4:21-29).

Metrich is silent regarding the constant current source is controlled as a function of a differential signal of a comparator resulting from the difference between the measuring voltage and a setpoint voltage.

Miyata discloses an air-fuel ratio sensor; wherein, the pump current is controlled as a function of a differential signal of a comparator resulting from the difference between the measuring voltage and a setpoint voltage (8:41-52, the pump current is controlled as a function of the difference between the measured voltage and a reference voltage or setpoint voltage determined by a differential amplifier or comparator). The reference voltage is 450 mV (8:53-67).

At the time of the invention, one with ordinary skill in the art would have found it obvious to modify the device of Metrich with the comparator for controlling the pump current in the manner recited by Miyata because doing so would allow one to detect the oxygen concentration quickly after the heater is energized (Miyata, 3:30-32). Furthermore, the comparator and the manner of controlling the pump current as disclosed by Miyata would still allow one to control the pump current of Metrich as well as allowing said current to be controlled without being affected by the internal resistance of the measuring cell (Miyata, 5:14-30).

15. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Metrich (US 5,312,538) in view of Miyata et al. (US 5,895,564) as applied to claims 16, 19, 26 and 28 above, and further in view of Kato et al. (US 6,623,618).

Addressing claim 18, Metrich is silent regarding air is present in the reference-gas space; however, it is well known in the art that atmospheric air is used as reference gas for an oxygen sensor.

However, lacking explicit disclosure from Metrich, Kato discloses a gas sensor; wherein, atmospheric air is introduced into the reference-chamber as the reference gas (7:66-8:6). At the time of the invention, one with ordinary skill in the art would have found it obvious to modify the device of Metrich with using atmospheric air as reference gas because all the elements are known in the art and the difference is the combination of known elements into a single device by using the atmospheric air as reference gas. Furthermore, the atmospheric air, separate or in combination, would not have performed a materially different function for one would still obtain the predictable result of sensing the concentration of oxygen with the atmospheric air as reference as in the manner disclosed by Kato (Kato, 7:66-8:6).

16. Claims 17 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Metrich et al. (US 5,312,538) in view of Hamada et al. (US 4,824,549).

Addressing claims 17 and 27, Metrich is silent regarding a plurality of pump cells is provided and the outer electrode of each pump cell receives the pump current. Hamada discloses an oxygen gas sensor (figure 5); wherein, the sensor comprises a plurality of pump cells having a common outer pump electrode 22. Furthermore, the outer electrode 22 of the plurality of pump cells receive the pump current, which is controlled by the magnitude of the signal generated from the measuring cell (5:46-64). At the time of the invention, one with ordinary skill in the art would have found it obvious to modify the device of Metrich with the plurality of pump cells with the outer electrode of each pump cell receiving the pump current in the manner disclosed by

Hamada because doing so would allow one to compensate for the sensor output for a chronological change (Hamada, 5:46-64) and improving the sensitivity of the sensor (Hamada, 5:7-11).

17. Claims 38-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Metrich (US 5,312,538) in view of Miyata et al. (US 5,895,564), Kato et al. (US 6,623,618) and Hamada et al. (US 4,824,549).

Addressing claims 38-39, with respect to the limitation "wherein the gas sensor device … exposed to the exhaust gas", please see the rejection of claim 20 above and figure 1.

Metrich is silent regarding the constant current source is controlled as a function of a differential signal of a comparator resulting from the difference between the measuring voltage and a setpoint voltage, a plurality of pump cells is provided and the outer electrode of each pump cell receives the pump current, air is present in the reference-gas space and the set point voltage is set to a value between 300 mV to 700 mV.

Miyata discloses an air-fuel ratio sensor; wherein, the pump current is controlled as a function of a differential signal of a comparator resulting from the difference between the measuring voltage and a setpoint voltage (8:41-52, the pump current is controlled as a function of the difference between the measured voltage and a reference voltage or setpoint voltage determined by a differential amplifier or comparator). The reference voltage is 450 mV (8:53-67).

At the time of the invention, one with ordinary skill in the art would have found it obvious to modify the device of Metrich with the comparator for controlling the pump

current in the manner recited by Miyata because doing so would allow one to detect the oxygen concentration quickly after the heater is energized (Miyata, 3:30-32).

Furthermore, the comparator and the manner of controlling the pump current as disclosed by Miyata would still allow one to control the pump current of Metrich as well as allowing said current to be controlled without being affected by the internal resistance of the measuring cell (Miyata, 5:14-30).

Kato discloses a gas sensor; wherein, atmospheric air is introduced into the reference-chamber as the reference gas (7:66-8:6).

At the time of the invention, one with ordinary skill in the art would have found it obvious to modify the device of Metrich with using atmospheric air as reference gas because all the elements are known in the art and the difference is the combination of known elements into a single device by using the atmospheric air as reference gas. Furthermore, the atmospheric air, separate or in combination, would not have performed a materially different function for one would still obtain the predictable result of sensing the concentration of oxygen with the atmospheric air as reference as in the manner disclosed by Kato (Kato, 7:66-8:6).

Hamada discloses an oxygen gas sensor (figure 5); wherein, the sensor comprises a plurality of pump cells having a common outer pump electrode 22. Furthermore, the outer electrode 22 of the plurality of pump cells receive the pump current, which is controlled by the magnitude of the signal generated from the measuring cell (5:46-64).

At the time of the invention, one with ordinary skill in the art would have found it obvious to modify the device of Metrich with the plurality of pump cells with the outer

electrode of each pump cell receiving the pump current in the manner disclosed by Hamada because doing so would allow one to compensate for the sensor output for a chronological change (Hamada, 5:46-64) and improving the sensitivity of the sensor (Hamada, 5:7-11).

18. Claims 40-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Metrich (US 5,312,538) in view of Mizutani et al. (US 4,927,517).

Addressing claims 40-41, Metrich discloses an analog-to-digital converter CAN in series with the measuring electrode 7 situated in the reference-gas space and receive the measured voltage from the measuring electrode 7 (figure 1). Furthermore, a comparator (the microprocessor) receives a digitized voltage from the analog-to-digital converter (4:1-20).

Metrich is silent regarding a sample-and-hold circuit, which is connected to the measuring electrode situated in the reference-gas space and is in series with the analog-to-digital converter.

Mizutani discloses a gas sensor comprises electrodes 4 and 6; wherein, electrode 4 is exposed to the target gas and the electromotive force between electrodes 4 and 6 is measured (10:35-68; therefore, the electrode 6 is the reference electrode of the gas sensor). Furthermore, figure 3 shows the sample and hold circuit 40 connected to the reference electrode 6 and is in series with the comparator 36 for comparing the measured electromotive force with reference voltages in order to control the pumping current (Mizutani, 10:35-11:2).

At the time of the invention, one with ordinary skill in the art would have found it obvious to modify the device of Metrich with the sample and hold circuit connected to the reference electrode as disclosed by Mizutani and the sample and hold circuit is connected in series to the comparator via series connection to the analog-to-digital converter of Metrich because the sample and hold circuit would store the measured electromotive force in order to control the pumping current supplied to the pump cell (Mizutani, 10:51-11:2).

Response to Arguments

19. Applicant's arguments filed 08/06/2010 have been fully considered but they are not persuasive.

With respect to Applicant's argument regarding the 35 U.S.C. 102(b) rejections of claims 11-13, 15, 20-23, 25 and 29-37, the argument is not persuasive for the following reasons. Firstly, with regard to Applicant's argument regarding the inherency doctrine, the argument is moot in view of the new rejection; however, to clarify the record, Examiner relied on the inherency doctrine in the previous Office Action because the claims failed to recite any structures that would further structurally limit the claimed device. Secondly, Applicant argued that Metrich does not anticipate the amended claims because Metrich fails to disclose "for a fixed value of the pump current … ON phases and OFF phases", the argument is not persuasive. The independent claims 11 and 21 recite "wherein the constant source is at least one of:"; therefore, the disclosure of Metrich only needs to satisfy at least one of option a and b as recited by the claim and the limitation "wherein

for a fixed value of pump current ... ON phases and OFF phases" is drawn to option (b). In the previous Office Action as well as current Office Action, Examiner had discussed that Metrich discloses the limitation of option (a); therefore, the claims 11 and 21 as amended is anticipated by the disclosure of Metrich. However, regarding the limitation "wherein for a fixed value of pump current ... ON phases and OFF phases", Metrich discloses for the current with predetermined strength and fixed duration of the ON and OFF phases (6:13-36, figure 2C) the device is configured to predefine the number of ON phases and OFF phases (the word "predefine" is interpreted to include the definition "to define in advance", Metrich discloses the device provides a periodic supply to the oxygen pump 2 with a variable cyclic ratio (6:55-63), which is controlled by the measurement signal delivered by the measurement cell (3:9-12); in other words, the number of the ON and OFF phases is defined by the variable cyclic ration, which is controlled by the measurement signal that is obtained prior to the supply of current to the oxygen pump; therefore, the number of the ON and OFF phases are predefined).
For the reasons stated above, Examiner maintains the position that claims 11 and 21 are anticipated by the disclosure of Metrich.

Applicant's arguments regarding the 35 U.S.C. 103(a) rejections of claims 16, 19, 26 and 28 as being unpatentable over the combined disclosures of Metrich and Miyata are not persuasive because the arguments regarding the rejection of independent claims 11 and 21 are not persuasive. Furthermore, Examiner had articulated the motivation for the combination addressed in the previous Office Action from the disclosure of Miyata

(please see page 6 of the previous Office Action and paragraph 14 on page 7 of current Office Action) and the motivation is not based on the disclosure of current application.

Applicant's argument regarding the 35 U.S.C. 103(a) rejection of claim 18 as being unpatentable over the combined disclosures of Metrich, Miyata and Kato is not persuasive because the argument regarding the rejection of claims 16 and 18 is not persuasive.

Applicant's argument regarding the rejection of claims 17 and 27 is not persuasive because the argument regarding the rejection of claims 11-12 and 21-22 is not persuasive.

With respect to Applicant's assertion regarding Official Notice, Applicant is respectfully requested to indicate specifically the portion of the Office Action containing Official Notice. Examiner will address such concern accordingly.

Conclusion

20. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BACH T. DINH whose telephone number is (571)270-5118. The examiner can normally be reached on Monday-Friday EST 7:00 A.M-3:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X. Nguyen can be reached on (571)272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Nam X Nguyen/
Supervisory Patent Examiner, Art Unit 1753

BD
10/23/2010